UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/853,112	05/09/2001	Stanley P. Woods	10003186-1	5804

7590 05/04/2004

Agilent Technologies
Legal Department, 51U-PD
Intellectual Property Administration
P.O. Box 58043
Santa Clara, CA 95052-8043

EXAMINER	
FLEMING, FRITZ M	
ART UNIT	**PAPER NUMBER**
2182	4

DATE MAILED: 05/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/853,112	Applicant(s) WOODS ET AL.	
	Examiner Fritz M Fleming	Art Unit 2182	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-16 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-16 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

FRITZ FLEMING
PRIMARY EXAMINER
GROUP 2100

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 09 May 2001 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8,10-16 are anticipated by Husted et al. under 102(b) by the following analysis. Per claim 1, note a system in the form of an industrial controller (10) comprising a communication means (the two high speed communication links 27a/b and backplane 16a/b,) and a set of modules (14 to include a power supply module 18, a processor module 26, communications modules 24a/b, I/O modules 20), each being capable of communicating via the communication means (via connection to the backplane per Figures 1 and 2 and column 4-5 wherein each functional module is attached to backplane 16), each having a clock 43 per Figure 2 (or also an internal clock in microprocessor 28), wherein the clocks are synchronized per columns 5 and 6 and Figure 3 via a time master module 31 operating as the master "M" in order to provide a coordinated system time signal "CST" to all other functional modules 14 via the link 27a (i.e. to the "LM" 24a functioning as a local master, which in turn forwards it to a second communications channel of the backplane 16a for use by all modules in the rack 12a), with the remaining modules 14 operating in a dependent mode "D" in which they receive the "CST" or a higher resolution resynchronizing signal for use in carrying

out instructions, with the update interval based upon the module 14 particular clock accuracy (i.e. column 6, lines 14-29), such that the simultaneity of actions between two or more modules 14a/b separated by communication links 27 is ensured (i.e. columns 6+ and Figure 7). Each I/O module 14a/b tracks the CST by means of the internal clocks 43 updated by the CST. Exemplary actions due to time conditional commands 121,123 (i.e. the claimed coordinated functions in synchronized time) are for example the starting of a motor or the sampling of a signal. Per claim 2, the rack 12a is considered to be an instrument bay. Per claim 3, power supply module 18 powers the modules of the selfsame rack. Per claim 4, an applied stimulus is the above starting of a motor. Per claim 5, the obtaining of a measurement is seen as the above mentioned sampling of a signal at a particular time T, with "time stamping" of a value returned over 27b/16a to the processor module 26 as an explicit time stamp (column 7, lines 28-36). Note the appropriate "means for" of claims 4 and 5 are in the appropriate modules. Per claim 6, note the above sampling a signal at T, which is the obtaining of a measurement. Per claim 7, the Background/Summary of the Invention describes such, being the precise coordination of separated components of an industrial control system (i.e. localized and widely dispersed, all within the factory with—column 1—various components being separated by a considerable distance over an expanse of a large factory or manufacturing operation), all without the indication of any "substantial modification" to software in the modules (i.e. for memory 36 or microprocessor 28 in each module 14) or the use of the modules by application software, as processor module 26 processes information provided by the communications modules 24 and I/O

modules 20 according to a stored program, and memory 36 holds programs executed by the microprocessor 28 to provide the described functions. Per claim 8, power lines are provided by module 18 and the conductors on backplane 16a. Per claim 10, a communications network is seen as the combined 27 and 16. Per claim 11, sub-nets are created, for example, via Figure 1, in which first and second racks form respective sub-nets are formed by the communications modules 24 of the racks 12 connected to the links 27. Per claim 12, the above mentioned sampling at time T (i.e. column 7, lines 28-35) is based upon messages (i.e. 121 to 14a,123 to 14b) from the processor 26 to modules 14 in the form of time conditional commands. Per claim 13, such is seen as the starting of a motor at a common CST value T some time in the future (column 6, lines 40-47). Per claim 14, the selfsame passage describes the sampling of a signal at the time T, wherein a series of samples at precise times includes a desired time between samples and an integer multiple of a predetermined sampling period (i.e. column 7, lines 37-48). Per claim 15, the same applies to the Figure 8 and the application of a stimulus to be performed a fixed interval after a triggering event, which includes a fixed interval I (i.e. column 7, line 49-column 8, line 20). Per claim 16, such is addressed above per the column 7, line 28-36 "time stamped" acquired sample transmitted to the processor module 26 via links 27b and 16a.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> **(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the**

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Husted et al. in view of Schultz et al.

As far as claim 9 is concerned, Husted et al. do teach the use of a common backplane to transmit both the power and communications between various modules; however, a cable is not anticipated.

In the same art of endeavor, Schultz et al. teach the combined cabling of data and power wires via Y-cable 18 that leads to connector 23. Note the use of an external

power supply 24, a processor module 10, I/O modules 13, a rack 12, and a common backplane 17.

Therefore it would have been obvious to one having ordinary skill in the art at the time that the invention was made to modify Husted et al. with the teachings of Schultz et al. in order to combine data and power cables in a common cable for the purpose of being able to use an external power supply with reduced cabling requirements.

Conclusion

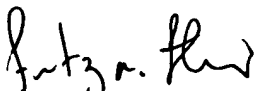
6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following references are cited as being of interest. "Modular Instrumentation at PC Prices" discusses PXI specifications. "The PXI Modular Instrumentation Architecture" discusses modular instrumentation aspects. The PXI Specifications set forth generalities of the PXI modules and the like. Kodosky et al. teach graphical aspects of a computer based modular instrumentation system. Ryan et al. teach a reconfigurable test instrument system. Schultz et al. teach a VXI modular instrumentation system chassis. Baraton et al. teach a modular instrumentation system coupled to a computer via a bus network. Eidson et al. teach synchronizing clocks. Vaisanen et al. teach modular plug-in units. Dummermuth teaches networked instrumentation modules. Duich teaches a bay based modular system. Weppler teaches details of the CST clock. Ilyadis et al. teach LAN synchronization. Pieronek et al. teach separate data and power cables.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fritz M Fleming whose telephone number is 703-308-1483. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on 703-308-1483. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Fritz M Fleming
Primary Examiner
Art Unit 2182

fmf